

### **ABSTRACT**

A method for controlling induction sound of an internal combustion engine is described. The method includes computing a first sound pressure during a run up of the engine, wherein the first sound pressure is based on each order of sound generated by the engine. Next, the engine is operated engine under a plurality of operating conditions and a second sound pressure is computed for each of the operating conditions. A frequency response of a microphone and a speaker used in computing the first and second sound pressures is then determined. The method further includes obtaining current vehicle operating conditions and decomposing the first and second sound pressures and the frequency response into engine orders. A net control signal is then generated, wherein the signal is based on each of the first and second sound pressures, the frequency response and the vehicle operating conditions so as to independently control individual orders of the engine sound.